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L1: Entry 1 of 59

File: USPT

Nov 21, 2000

US-PAT-NO: 6149919

DOCUMENT-IDENTIFIER: US 6149919 A

TITLE: Immunogenic detoxified mutants of cholera toxin and of the toxin LT, their preparation and their use for the preparation of vaccines

DATE-ISSUED: November 21, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Domenighini; Mario	Quercegrossa			IT
Rappuoli; Rino	Quercegrossa			IT
Pizza; Mariagrazia	Siena			IT
Hol; Wim	Seattle	WA		

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Biocine S.p.A.	Siena			IT	03

APPL-NO: 08/ 823120 [\[PALM\]](#)

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PARENT-CASE:

This application is a continuation of application Ser. No. 08/256,003, filed Nov. 11, 1994, which is a filing under 35 U.S.C. 371 of PCT/EP92/03016, filed Dec. 30, 1992 abandoned; and which is a filing from parent Italian patent application M191 A 003513, filed Dec. 31, 1991.

FOREIGN-APPL-PRIORITY-DATA:

COUNTRY	APPL-NO	APPL-DATE
IT	M191A03513	December 31, 1991

INT-CL: [07] [A61 K 39/02](#), [A61 K 39/108](#), [A61 K 39/106](#), [C12 P 21/06](#)US-CL-ISSUED: [424/236.1](#); [424/184.1](#), [424/234.1](#), [424/240.1](#), [424/241.1](#), [424/257.1](#), [424/261.1](#), [435/69.3](#), [435/172.3](#)US-CL-CURRENT: [424/236.1](#); [424/184.1](#), [424/234.1](#), [424/240.1](#), [424/241.1](#), [424/257.1](#), [424/261.1](#), [435/69.3](#)FIELD-OF-SEARCH: [424/240.1](#), [424/241.1](#), [424/257.1](#), [424/261.1](#), [424/184.1](#), [424/234.1](#), [424/236.1](#), [435/69.3](#), [435/172.3](#)

PRIOR-ART-DISCLOSED:

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<input type="checkbox"/> 4935364	June 1990	Kaper et al.	435/172.3

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ART-UNIT: 161

PRIMARY-EXAMINER: Housel; James C.

ASSISTANT-EXAMINER: Portner; Virginia

ATTY-AGENT-FIRM: Trujillo; Doreen Y. Harbin; Alisa A. Blackburn; Robert P.

ABSTRACT:

An immunogenic detoxified protein comprising the amino acid sequence of subunit A of cholera toxin (CT-A) or subunit A of an Escherichia coli heat labile toxin (LT-A) or a fragment thereof wherein one or more amino acids at, or in positions corresponding to Val-53, Ser-63, Val-97, Tyr-104 or Pro-106 are replaced with another amino acid or deleted. Examples of specific replacements include Val-53-Asp, Asp, Val-53-Glu, Val-53-Tyr, Ser-63-Lys, Val-97-Lys, Val-97-Tyr, Tyr-104-Lys, Tyr-104-Asp, Tyr-104-Ser, Pro-106-Ser. The immunogenic detoxified protein is useful as vaccine for Vibrio cholerae or an enterotoxigenic strain of Escherichia coli and is produced by recombinant DNA means by site-directed mutagenesis.

9 Claims, 4 Drawing figures

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